

Characteristics

(Applicable standards : JIS C 5223, EIAJ RC-2134)

ROHM was the first company in the world to offer rectangular chip resistors.

Today it has 7 series of reliable resistors ranging from the MCR100 (6.3mm × 3.2mm) down to the newest generation MCR01 (1.0mm × 0.5mm). ROHM resistors are ISO-9001 approved.

The design and specifications are subject to change without prior notice. Before ordering or use, please check the technical specification sheet.

● General Purpose

Part No.	Size code	Rated power (70°C)	Maximum*1 operating voltage (V)	Maximum*2 overload voltage (V)	Resistance tolerance	Temperature characteristics of resistance (ppm/°C)	Resistance range	Operating temperature range (°C)
MCR01	1005 (0402)	1/16W (0.063W)	50	100	J (±5%)	+500/-250 ±250	2.2Ω ~ 9.1Ω (E24 series) 10Ω ~ 3.3MΩ (E24 series)	-55 ~ +125
					F (±1%)	±250	100Ω ~ 2.2MΩ (E24 series)	
MCR03	1608 (0603)	1/10W (0.100W)	50	100	J (±5%)	500±350 ±500 ±200	1.0Ω ~ 2.0Ω (E24 series) 2.2Ω ~ 9.1Ω (E24 series) 10Ω ~ 10MΩ (E24 series)	-55 ~ +155
						W ±200	10Ω ~ 10MΩ (E24 series)	
						X ±100*3	10Ω ~ 1.0MΩ (E96,24 series)	
MCR10	2012 (0805)	1/8W (0.125W)	150	200 (1/10W : 300)	J (±5%)	500±350	0.68Ω (E6 series) 1.0Ω ~ 2.0Ω (E24 series)	-55 ~ +155
						±500	2.2Ω ~ 9.1Ω (E24 series)	
						±200	10Ω ~ 10MΩ (E24 series)	
					F (±1%)	W ±200	10Ω ~ 2.2MΩ (E24 series)	
						X ±100	10Ω ~ 2.2MΩ (E96,24 series)	
MCR18	3216 (1206)	1/4W (0.25W)	200	400	J (±5%)	500±350	0.47Ω ~ 0.68Ω (E6 series) 1.0Ω ~ 2.0Ω (E24 series)	-55 ~ +155
						±500	2.2Ω ~ 9.1Ω (E24 series)	
						±200	10Ω ~ 10MΩ (E24 series)	
					F (±1%)	W ±200	10Ω ~ 10MΩ (E24 series)	
						X ±100	10Ω ~ 2.2MΩ (E96,24 series)	
						X ±100	10Ω ~ 2.2MΩ (E96,24 series)	

● Power Type

Part No.	Size code	Rated power (70°C)	Maximum*1 operating voltage (V)	Maximum*2 overload voltage (V)	Resistance tolerance	Temperature characteristics of resistance (ppm/°C)	Resistance range	Operating temperature range (°C)
MCR25	3225 (1210)	1/4W (0.25W)	200	400	J (±5%)	500±350	0.47Ω ~ 0.68Ω (E6 series) 1.0Ω ~ 2.0Ω (E24 series)	-55 ~ +125
						±500	2.2Ω ~ 5.1Ω (E24 series)	
						±200	5.6Ω ~ 3.3MΩ (E24 series)	
					F (±1%)	W ±200	5.6Ω ~ 3.3MΩ (E24 series)	
MCR50	5025 (2010)	1/2W (0.50W)	200	400	J (±5%)	±200	10Ω ~ 1.0MΩ (E96,24 series)	-55 ~ +125
						X ±100	39Ω ~ 1.0MΩ (E96,24 series)	
						500±350	0.68Ω (E6 series) 1.0Ω ~ 2.0Ω (E24 series)	
					F (±1%)	±500	2.2Ω ~ 9.1Ω (E24 series)	
						±200	10Ω ~ 330kΩ (E24 series)	
MCR100	6432 (2512)	1.00W	200	400	J (±5%)	±350	360kΩ ~ 560kΩ (E24 series)	-55 ~ +125
						W ±200	10Ω ~ 330kΩ (E24 series)	
						±200	10Ω ~ 180kΩ (E96,24 series)	
					F (±1%)	500±350	0.68Ω (E6 series) 1.0Ω ~ 2.0Ω (E24 series)	
						±500	2.2Ω ~ 9.1Ω (E24 series)	
						±350	10Ω ~ 22Ω (E24 series)	

Notes : 1. Jumper chips of the same shape are available (50mΩ Max.)

2. Figures in () show the size in inches.

3. FX (except MCR 03) and JW : USA only. For other markets, the TCR of ±100ppm/°C(X) with F and of ±200ppm/°C(X) with J are guaranteed relative to the same resistance range.

4. *1: The rated voltage is the result of rated voltage (V) = $\sqrt{\text{rated power (W)} \times \text{nominal resistance (Ω)}}$ or the maximum operating voltage, whichever is smaller.

*2: In the short-time overloading test (JIS C 5202 5.5) , and intermittent overloading test (JIS C 5202 5.8) , the load voltage used is a particular voltage (2.5 times the rated voltage) or the maximum overload voltage.

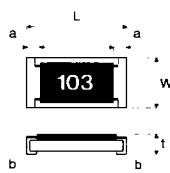
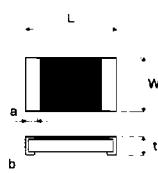
*3: Included in the protective mask material category. Be sure of the type before ordering.

External Dimensions

(Unit : mm)

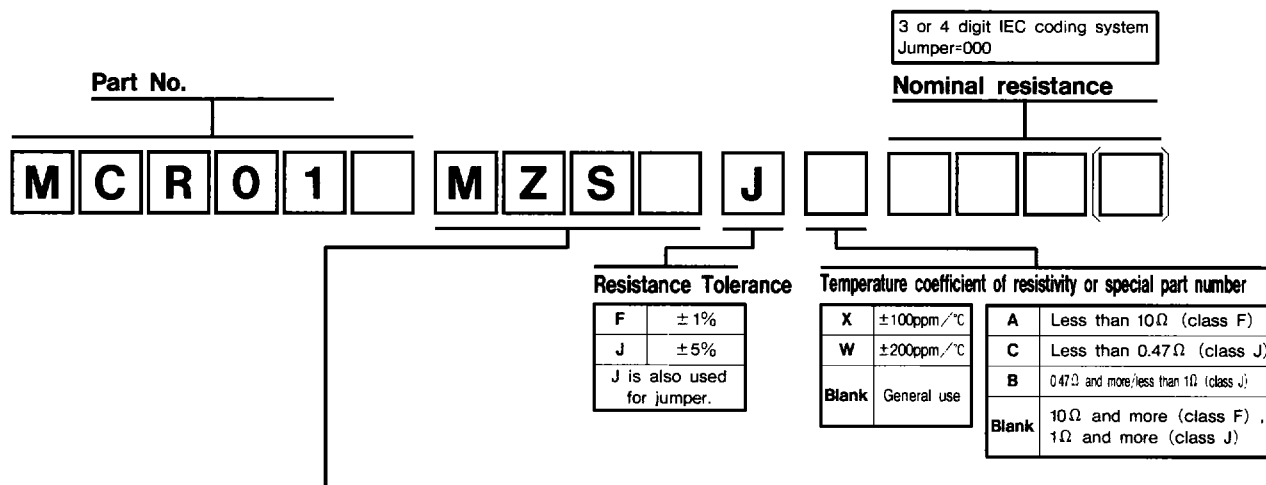
●MCR01, MCR03FX

●Except for MCR01, MCR03FX



Part No.	Size code	L	W	t	a	b
MCR01	1005 (0402)	1.0±0.05	0.5±0.05	0.35±0.05	0.2±0.1	0.25 ^{+0.05} _{-0.1}
MCR03	1608 (0603)	1.6±0.1	0.8±0.1	0.45±0.1	0.3±0.2	0.3±0.2
MCR10	2012 (0805)	2.0±0.1	1.25±0.1	0.55±0.1	0.4±0.2	0.4±0.2
MCR18	3216 (1206)	3.2±0.15	1.6±0.15	0.55±0.1	0.5±0.25	0.5±0.25
MCR25	3225 (1210)	3.2±0.15	2.5±0.15	0.55±0.15	0.5±0.25	0.5±0.25
MCR50	5025 (2010)	5.0±0.15	2.5±0.15	0.55±0.15	0.6±0.25	0.6±0.25
MCR100	6432 (2512)	6.3±0.15	3.2±0.15	0.55±0.15	0.6±0.25	0.6±0.25

Product Designation



Packing Specifications Symbol (Thick Film Rectangular Chip Resistors)

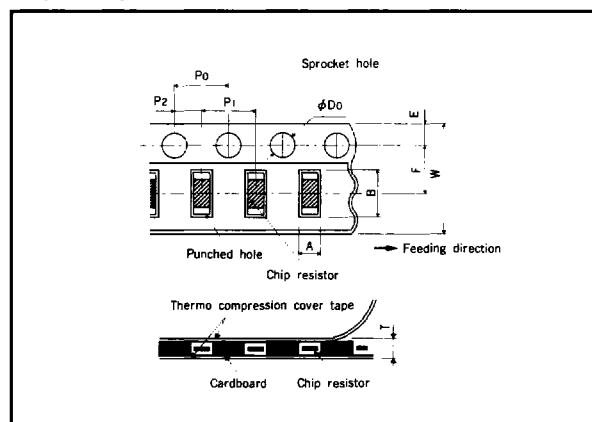
Part No.	Code	Resistance tolerance		Packaging style	Reel	Standard ordering unit (pcs)	Shipped to
		J(±5%)	F(±1%)				
MCR01	MZS	⊙	⊙	Paper tape (2 mm pitch)	φ180mm (7in.)	10,000	Worldwide
	PZSI	⊙	—	Bulk case	—	50,000	Worldwide
MCR03	EZH	⊙	—	Paper tape (4 mm pitch)	φ180mm (7in.)	5,000	Worldwide
	FZH	⊙	—	Paper tape (4 mm pitch)	φ268mm (10.5in.)	10,000	Worldwide
	QZH	⊙	—	Paper tape (4 mm pitch)	φ330mm (13in.)	20,000	Worldwide
	EZHM	⊙	—	Paper tape (4 mm pitch)	φ180mm (7in.)	5,000	USA only
	FZHM	⊙	—	Paper tape (4 mm pitch)	φ268mm (10.5in.)	10,000	USA only
	EZP	—	⊙	Paper tape (4 mm pitch)	φ180mm (7in.)	5,000	Worldwide
	PZHI	⊙	—	Bulk case	—	25,000	Worldwide
MCR10	EZH	⊙	⊙	Paper tape (4 mm pitch)	φ180mm (7in.)	5,000	Worldwide
	FZH	⊙	—	Paper tape (4 mm pitch)	φ268mm (10.5in.)	10,000	Worldwide
	QZH	⊙	—	Paper tape (4 mm pitch)	φ330mm (13in.)	20,000	Worldwide
	EZHM	⊙	⊙	Paper tape (4 mm pitch)	φ180mm (7in.)	5,000	USA only
	FZHM	⊙	⊙	Paper tape (4 mm pitch)	φ268mm (10.5in.)	10,000	USA only
	PZHI	⊙	—	Bulk case	—	10,000	Worldwide
MCR18	EZH	⊙	⊙	Paper tape (4 mm pitch)	φ180mm (7in.)	5,000	Worldwide
	FZH	⊙	—	Paper tape (4 mm pitch)	φ268mm (10.5in.)	10,000	Worldwide
	QZH	⊙	—	Paper tape (4 mm pitch)	φ330mm (13in.)	20,000	Worldwide
	EZHM	⊙	⊙	Paper tape (4 mm pitch)	φ180mm (7in.)	5,000	USA only
	FZHM	⊙	⊙	Paper tape (4 mm pitch)	φ268mm (10.5in.)	10,000	USA only
	PZHI	⊙	—	Bulk case	—	5,000	Worldwide
MCR25	JZH	⊙	⊙	Embossed tape (4 mm pitch)	φ180mm (7in.)	4,000	Worldwide
	JZHM	⊙	⊙	Embossed tape (4 mm pitch)	φ180mm (7in.)	4,000	USA only
	LZHM	⊙	⊙	Embossed tape (4 mm pitch)	φ268mm (10.5in.)	10,000	USA only
MCR50	JZH	⊙	⊙	Embossed tape (4 mm pitch)	φ180mm (7in.)	4,000	Worldwide
	JZHM	⊙	⊙	Embossed tape (4 mm pitch)	φ180mm (7in.)	4,000	USA only
	LZHM	⊙	⊙	Embossed tape (4 mm pitch)	φ268mm (10.5in.)	10,000	USA only
MCR100	JZH	⊙	⊙	Embossed tape (4 mm pitch)	φ180mm (7in.)	4,000	Worldwide
	JZHM	⊙	⊙	Embossed tape (4 mm pitch)	φ180mm (7in.)	4,000	USA only
	LZHM	⊙	⊙	Embossed tape (4 mm pitch)	φ268mm (10.5in.)	10,000	USA only

* FX (except MCR03) and JW : USA only. For other markets, the TCR of ±100ppm/°C(X) with F and of ±200ppm/°C(W) with J are guaranteed relative to the same resistance range.

Packaging Specifications

(Unit : mm)

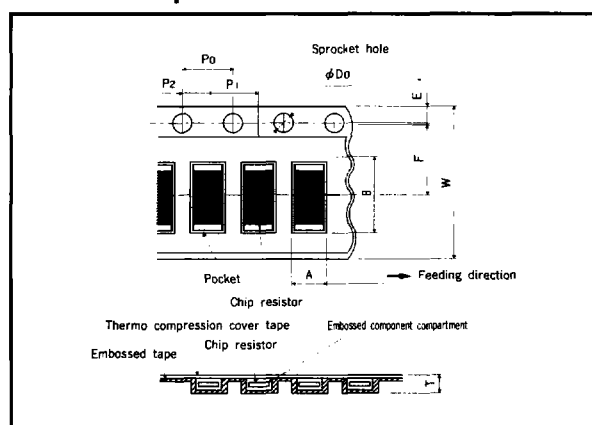
Paper tape



Part No.	A	B	W	F	E
MCR01	0.7 ± 0.1	1.2 ± 0.1	8.0 ± 0.3	3.5 ± 0.05	1.75 ± 0.1
MCR03	1.1 ± 0.1	1.9 ± 0.1	8.0 ± 0.3	3.5 ± 0.05	1.75 ± 0.1
MCR10	$1.65^{+0.2}_{-0.1}$	$2.4^{+0.2}_{-0.1}$	8.0 ± 0.3	3.5 ± 0.05	1.75 ± 0.1
MCR18	$1.95^{+0.1}_{-0.05}$	$3.5^{+0.15}_{-0.05}$	8.0 ± 0.3	3.5 ± 0.05	1.75 ± 0.1

Part No.	P1	P2	P0	ϕD_0	T
MCR01	2.0 ± 0.05	2.0 ± 0.05	4.0 ± 0.1	$\phi 1.5^{+0.1}_0$	1.1Max.
MCR03	4.0 ± 0.1	2.0 ± 0.05	4.0 ± 0.1	$\phi 1.5^{+0.1}_0$	1.1Max.
MCR10	4.0 ± 0.1	2.0 ± 0.05	4.0 ± 0.1	$\phi 1.5^{+0.1}_0$	1.1Max.
MCR18	4.0 ± 0.1	2.0 ± 0.05	4.0 ± 0.1	$\phi 1.5^{+0.1}_0$	1.1Max.

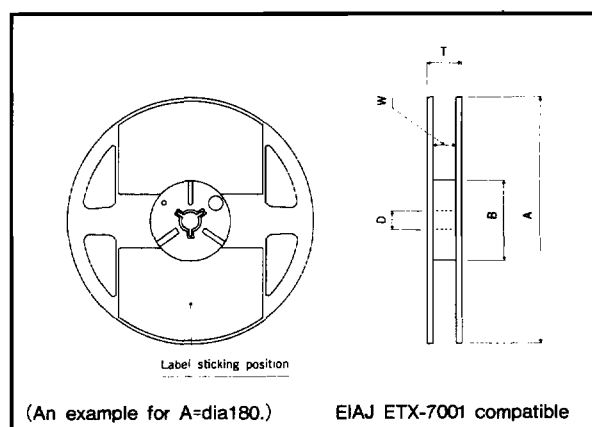
Embossed tape



Part No.	A	B	W	F	E
MCR25	3.0 ± 0.1	3.5 ± 0.1	8.0 ± 0.3	3.5 ± 0.05	1.75 ± 0.1
MCR50	3.4 ± 0.2	5.6 ± 0.2	12.0 ± 0.3	5.5 ± 0.05	1.75 ± 0.1
MCR100	3.5 ± 0.2	6.7 ± 0.2	12.0 ± 0.3	5.5 ± 0.05	1.75 ± 0.1

Part No.	P1	P2	P0	ϕD_0	T
MCR25	4.0 ± 0.1	2.0 ± 0.05	4.0 ± 0.1	$\phi 1.5^{+0.1}_0$	1.1Max.
MCR50	4.0 ± 0.1	2.0 ± 0.05	4.0 ± 0.1	$\phi 1.5^{+0.1}_0$	1.1Max.
MCR100	4.0 ± 0.1	2.0 ± 0.05	4.0 ± 0.1	$\phi 1.5^{+0.1}_0$	1.1Max.

Plastic reel



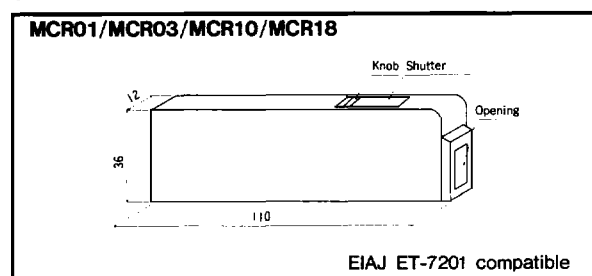
Part No.	A	B	D	W	T
MCR01	$\phi 180^{+0}_{-3}$	$\phi 60^{+1}_0$	$\phi 13 \pm 0.2$	9.0 ± 0.3	11.4 ± 1.0
MCR03	$\phi 180^{+0}_{-3} *$	$\phi 60^{+1}_0$	$\phi 13 \pm 0.2$	9.0 ± 0.3	11.4 ± 1.0
MCR10	$\phi 180^{+0}_{-3} *$	$\phi 60^{+1}_0$	$\phi 13 \pm 0.2$	9.0 ± 0.3	11.4 ± 1.0
MCR18	$\phi 180^{+0}_{-3} *$	$\phi 60^{+1}_0$	$\phi 13 \pm 0.2$	9.0 ± 0.3	11.4 ± 1.0
MCR25	$\phi 180^{+0}_{-3} *$	$\phi 60^{+1}_0$	$\phi 13 \pm 0.2$	9.0 ± 0.3	11.4 ± 1.0
MCR50	$\phi 180^{+0}_{-3} *$	$\phi 60^{+1}_0$	$\phi 13 \pm 0.2$	13.0 ± 0.3	15.4 ± 1.0
MCR100	$\phi 180^{+0}_{-3} *$	$\phi 60^{+1}_0$	$\phi 13 \pm 0.2$	13.0 ± 0.3	15.4 ± 1.0

* 10,000pcs/reel : A=268mm

20,000pcs/reel : A=330mm

Dia. 180 and dia. 330 reels comply with EIAJ ETX-7001.

Bulk case



Part No.	Code	Resistance tolerance		Standard ordering unit (pcs)	Shipped to
		J($\pm 5\%$)	F($\pm 1\%$)		
MCR01	PZSI	\odot	—	50,000	Worldwide
MCR03	PZHI	\odot	—	25,000	Worldwide
MCR10	PZHI	\odot	—	10,000	Worldwide
MCR18	PZHI	\odot	—	5,000	Worldwide